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### Restricting Internet Use in a Computer-based Class Predicts Higher Exam Scores

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# Restricting Internet Use in a Computer-based Class Predicts Higher Exam Scores

## Abstract

Use of computing devices in classrooms has become increasingly common.

### Benefits:

- Students may be more academically satisfied and engaged when they are able to use these devices in the classroom (e.g., Gaudreau, Miranda, & Gareau, 2014; Samson, 2010).

### Drawbacks:

- Using them for non-relevant tasks can be distracting and result in lower academic performance (e.g., Ravizza, Hambrick, & Fenn, 2014; Gaudreau et al., 2014).

Distracting activities often originate from internet access (Fried, 2008; McCreary, 2009).

- This may be particularly problematic in courses where the internet is constantly accessible, such as in courses that meet in computer labs.

However, few studies have examined internet usage experimentally to determine its effect on academic performance.

In the current study, we sought to determine whether blocking internet use in computer lab statistics courses would elicit higher academic performance.

## Keywords

fsc2015

## Disciplines

Psychology

## Comments

Presented at the Association for Psychological Science Convention in New York City, New York, May 2015.

# Restricting Internet Use in a Computer-based Class Predicts Higher Exam Scores

Kimberly J. McClure Brenchley & Laura L. Phelan

## Introduction

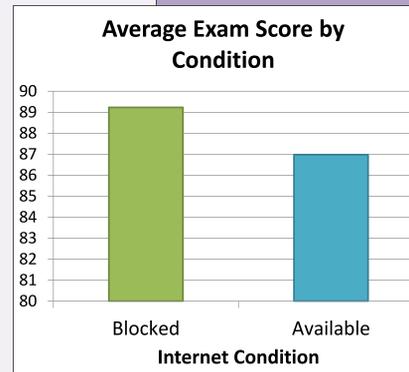
- Use of computing devices in classrooms has become increasingly common.
  - **Benefits:**
    - Students may be more academically satisfied and engaged when they are able to use these devices in the classroom (e.g., Gaudreau, Miranda, & Gareau, 2014; Samson, 2010).
  - **Drawbacks:**
    - Using them for non-relevant tasks can be distracting and result in lower academic performance (e.g., Ravizza, Hambrick, & Fenn, 2014; Gaudreau et al., 2014).
- Distracting activities often originate from internet access (Fried, 2008; McCreary, 2009).
  - This may be particularly problematic in courses where the internet is constantly accessible, such as in courses that meet in computer labs.
- However, few studies have examined internet usage experimentally to determine its effect on academic performance.
- **In the current study, we sought to determine whether blocking internet use in computer lab statistics courses would elicit higher academic performance.**



- Surprisingly, there was no main effect [ $F(1,66) = 0.06, p = .806, \eta^2_p < .01$ ] or interaction [Wilks'  $\lambda = 0.99, F(1,66) = 0.22, p = .637, \eta^2_p < .01$ ] involving the counterbalance order, indicating that for students who received the blocked internet first, performance boosts during blocked internet did not carry over when internet was subsequently made available.
- Instructor, course, and semester were also examined but did not predict exam scores.
- Results remained consistent when the data were re-analyzed including the previously excluded students.

## Results

A repeated-measures ANOVA showed that **when the internet was blocked, students had higher exam scores than when internet was not blocked**, Wilks'  $\lambda = 0.92, F(1,67) = 6.02, p = .017, \eta^2_p = .08$ . See Figure 1.



## Method

We used classroom management software (Netop Vision 8) to experimentally manipulate whether students had access to internet on their lab computers.

- **Design**
  - IV: Internet Availability (2 levels: available or blocked)
  - DV: Exam Scores
  - Within-Subjects
  - Counterbalanced:
    - We blocked the internet for approximately half of a semester (experimental condition)
    - We kept the internet unblocked (i.e., available) for the other half of the semester (control condition).
    - Students were explicitly discouraged from using their computers for unrelated activities throughout the entire semester, regardless of condition.
- **Participants**
  - $N = 77$
  - Students were enrolled in Basic Statistics or Advanced Statistics (5 sections total) with one of two instructors across two semesters.
  - The data of students who took more than one statistics course were removed from the second statistics course they took ( $n=7$ ), and 2 outliers were removed.
- **Measures**
  - For each course, exam scores were averaged for the control and experimental segments.



## Discussion

- These findings support previous findings that non-academic computer use in the classroom can lead to lower academic performance, and further suggest that blocking internet use altogether may be an effective pedagogical tool for enhancing student learning.
- Jackson (2013) makes recommendations for mobile technology in the classroom, e.g.:
  1. Establishing a middle ground between completely banning computer use in the classroom vs. no policies about computer use
    - Our research specifically provides that middle ground in that students have access to computers without the distractions of the internet.
  2. Education of students regarding the negative effects of distraction and multitasking
    - Our research findings can be used to educate students that their academic performance is influenced by misuse of technology during class time.
  3. Providing clear guidelines on appropriate computer use and etiquette.
    - Computer use policies should clearly detailed in the course syllabus and discussed with students to help them understand why the policies are in place and the negative impact of multitasking.

## References

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